

PATENT
ATTORNEY DOCKET NO. 2946

water. A three-phase cycle is used, consisting of a mix fill phase, a react fill phase and a react discharge phase. [In the mix fill phase the reactor environment is controlled to provide an initial anaerobic time period for achieving phosphorous release and denitrification of oxidized nitrogen present in the reactor from the prior cycle. In the react fill phase waste water continues to enter the reactor. The reactor environment is controlled to provide alternating periods of aeration and mixing and mixing only to promote completely mixed aerobic and anoxic conditions. The alternating periods of aerobic and anoxic conditions promote the oxidation of organic and nitrogenous waste products and the biological uptake of phosphorous followed by the denitrification of oxidized nitrogen. Finally, in the react discharge phase, waste water flow into the reactor ceases. The reactor environment is still controlled to provide alternating periods of aerobic and anoxic conditions. The waste water in the reactor is directed to a membrane device for solids/liquid separation. The solids/liquid mixture that does not pass through the membrane is returned to the reactor. This treatment approach eliminates the necessity to provide separate anaerobic and anoxic basins.] The [combination of the membrane device with the sequencing batch reactor] process eliminates the [necessity to provide] need for separate basins for anaerobic and anoxic conditions, appropriate time periods for a quiescent environment for solids/liquid separation and [the